A Global Vegetation Modeling System for NEWS

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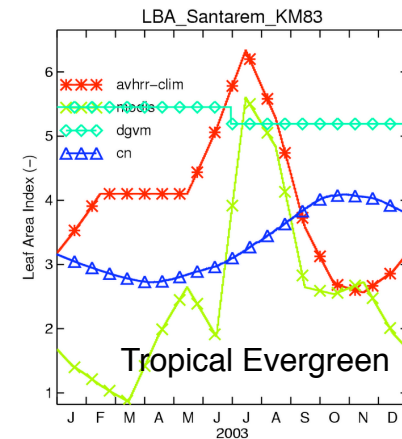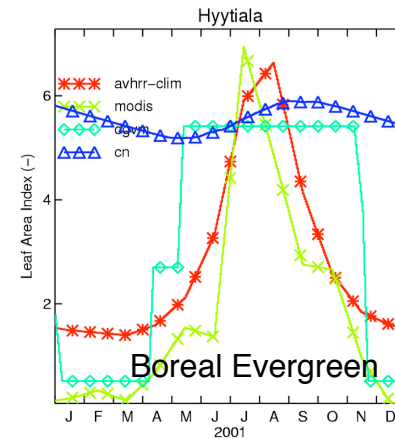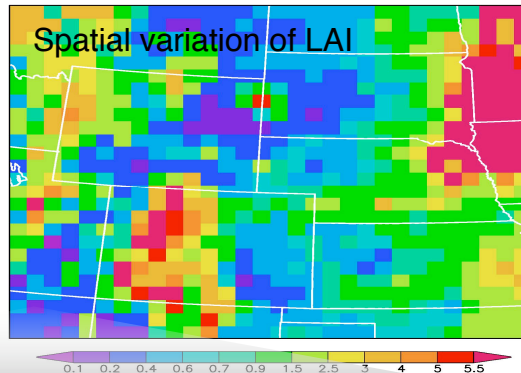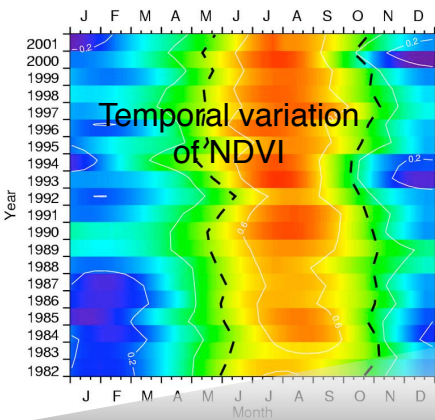

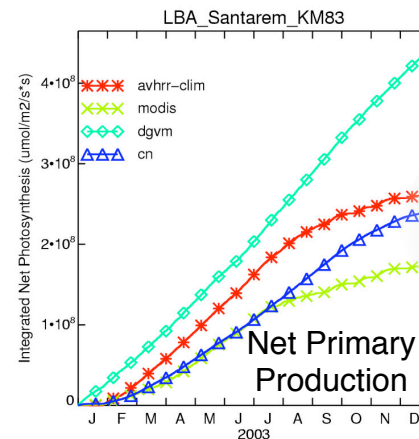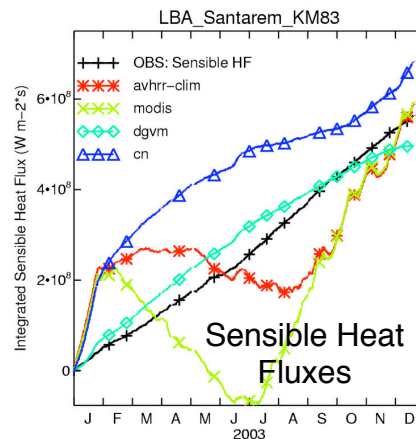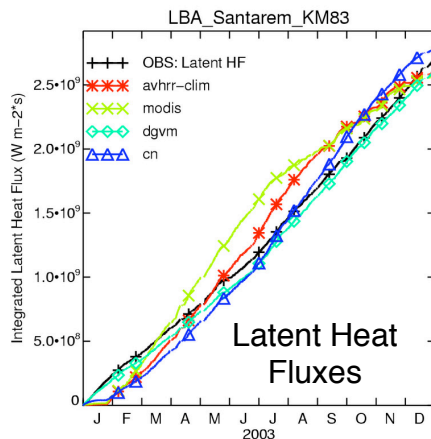Alps Subdomain

Temporal variation of NDVI

Spatial variation of LAI

Hyytiala — Boreal Evergreen

LBA_Santarem_KM83 — Tropical Evergreen

Vielsalm — Temperate Deciduous

CastelPorziano — Mediterranean Evergreen
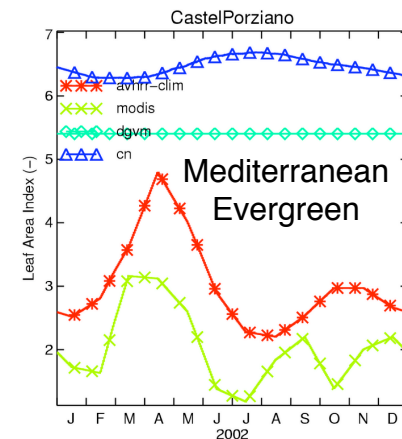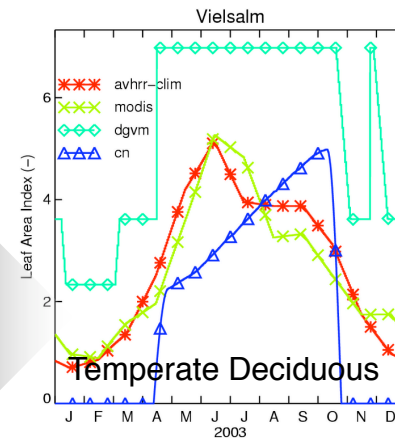
Aim: build a vegetation modeling system which in particular includees capabilities for prognostic vegetation phenology.

Justification: temporal and spatial variability of vegetation phenology is tightly coupled to water and carbon exchanges on the seasonal to interannual scale: needs to be correctly represented in climate models.

Evaluation: the CLM3 prognostic phenology schemes (DGVM/CN) show a good timing in temperate broadleaf forests in comparison to the diagnostic measures from AVHRR and MODIS. Drought-phenology in semi-arid and tropical biomes is more difficult to model. For these climates the satellite VI's also show larger uncertainties.

LBA_Santarem_KM83 — Latent Heat Fluxes

LBA_Santarem_KM83 — Sensible Heat Fluxes

LBA_Santarem_KM83 — Net Primary Production

Application: The planned global estimation of generally applicable global phenological model parameters which hold for all vegetation and climate zones will enhance our ability to simulate seasonal and interannual heat, water and carbon exchanges, since these are very sensitive to phenology as our first results show!